

ABSTRACT OF THE DISCLOSURE

[0048] The present invention relates to a method and apparatus for delivery of reactants to a substrate processing chamber. An electronically controlled valve assembly is provided for rapid delivery of pulses of reactants to the chamber. The valve assembly comprises a valve body having a valve seat, and at least one gas inlet and one gas outlet below the seat. The piston is selectively movable within the valve body to open and close the valve. In order to actuate the valve assembly, current is sent to a solenoid coil within the valve body. The solenoid coil generates a magnetic field that acts on an adjacent magnetic member. The solenoid coil, magnetic member and piston are arranged such that relative movement of the coil and magnetic member cause the piston to be moved relative to the valve seat.

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